

WHITE PAPER

Public Policy and Long-Term Travel Demand

Summary

The government affects future travel demand through new project construction, maintenance of existing infrastructure, and by providing incentives and disincentives for consumer travel choices. Current trends reveal decreasing transportation revenues from user fees in the future as witnessed by the rise in Local Option Taxes. In the long run, policy makers will likely use laws and regulations to shift the true cost of transportation onto the traveler. This paper summarizes three types of public challenges relevant to travel demand and for each highlights a handful of leading public policy responses. Briefly, the major observations are as follows:

- *Infrastructure Financing:* Reduced revenue from traditional sources is spurring both innovative financing partnerships and shifts both towards and away from user fees. Travel demand will be affected if future funding fails to provide adequate transportation capacity and by the degree in which drivers have to pay for the costs of their travel.
- *Congestion Mitigation:* Increased congestion and its related externalities will likely provide political capital for new road pricing measures and funding for ITS. Tolls may reduce highway demand and shift travel to other modes, and ITS will have the opposite effect.
- *Environment:* climate change, oil dependency, and other environmental issues will result in additional regulation of emissions. Most policy choices will make the price of vehicles and fuels more expensive, and possibly dampen future growth in vehicle ownership.

Infrastructure Financing

Funding for transportation projects in the future will be hugely affected by two trends: the desire to utilize innovative funding partnerships between public and private sectors and the desire to have the real cost of a project be born by the groups that will benefit. Past forms of financing are shifting as motor fuel tax trust funds collect less money relative to construction, maintenance, and right-of-way costs. In the short run, states and municipal governments could rely on local option taxation and ballot initiatives with specific project funding. Federal priorities for new infrastructure projects may have to compete for funding with replacement and improvement investments. Currently, much of the transportation infrastructure built over four decades ago is close to the end of its operational lifespan. Repairing and replacing bridges and other structures will compete with new projects for public sector time and funds. Below are some possible financing tools and issues that may be of value when considering financing transportation for the next 50 years.

User Fees

State and Federal government has generated most of its revenue for transportation from user fees over the past century. The most common user fees include gas taxes, vehicle registration and tolls. Major revenue from sources such as the trust fund generated from motor fuel taxes have been a declining source of monies as state and local governments have avoided adjusting the rates to match inflation and fuel efficiency in vehicles has contributed to reduced per capita consumption. Significant local taxes on gasoline will cause consumers to purchase the product elsewhere; and in the past two decades the public has consistently voted against motor fuel tax increases. Recently, politicians have been generating voter support through rescinding vehicle taxes such as the high profile recall election of the California governor. This trend leads to lower operating expenses for drivers increasing their ability to travel additional miles. Tolls are increasingly seen as a viable source of collecting revenue as technology becomes more effective and less costly. However, the public will be strongly opposed to paying tolls on existing infrastructure limiting future tolling to new projects.

Local Option Transportation Taxes

Over the last 20 years, localities have chosen to cover transportation efforts through Local Option Transportation Taxes (LOTTs). Local governments have chosen to raise sales taxes in most cases or create payroll taxes to cover declining revenue from motor fuel taxes. Sales taxes create a broad base for revenue and are noticed less as the increases are incremental, often around 0.5 percent. Some experts argue that this fee is regressive as lower income travelers spend a larger percentage of their income compared with the more affluent. The sales tax is not linked directly to travel demand, as the most frequent travelers will not have to pay the marginal costs of their travel. The trend towards LOTTs appears to be on the rise and is now being presented to voters via ballot initiatives like the Denver T-REX light rail project that passed in 2004. Direct democracy financing bypasses planning efforts as the funds are usually allocated to specific projects, which may not be the identified priorities of the RPOs and MPOs. LOTTs are the one type of infrastructure financing that generally does not internalize the costs of transportation impacts. If the LOTT trend continues, cheaper travel will result in more VMT (Vehicle Miles Traveled).

Public Private Partnerships and Privatization

Public private partnerships allow the government to leverage its increasingly limited funds and sponsor more new projects than otherwise would have been possible. Internationally, large projects such as the New Millau Bridge in France and the Vasco da Gama Bridge in Portugal have shown the United States that joint ventures can significantly reduce costs. The public-private combination allows the government to reduce the risk of investment and the market system to generate competition and decrease cost. The partnerships can maximize efficiencies by “unbundling” components of the project allowing private contractors to work on only the specific areas where they have the most expertise. Innovative methods, such as leasing land for development sites on transit properties and selling a private firm toll-collecting concessions are two of an array of possibilities that are likely to emerge in the future and supplement taxes and loans.

Privately run roads such as SR 125 near San Diego are being constructed, but privatizing existing public infrastructure is unlikely. The public will resist paying for services if they believe they have already paid for the infrastructure through taxation. Overall per capita travel demand may

decrease as the private sector assumes fee collection because transportation costs will likely increase.

Development Charges

Just as environmental policy attempts to capture the cost of “externalities” often not captured in production costs, communities will increasingly seek to hold beneficiaries responsible for the financing of transportation infrastructure. The improvement of financial modeling and other metrics will better reveal economic benefits from projects and to whom they accrue. This information will assist planners in assigning costs to new development as impact fees as opposed to using property taxes. Opponents believe that impact fees act as a tax that could stifle investment; other studies suggest that impact fees are not a drag on local economies. Like local gas taxes, development charges may have the opposite effect and create more sprawl and associated increases in VMT by driving development to areas without the fees.

Congestion Mitigation Policy

In 2002, it was estimated that up to \$70 billion dollars in productivity were lost to commuters stuck in traffic. Congestion is growing every year and is a daily visible reality to almost every American. Future growth in congestion is nearly assured, with more travelers on roadways spending more time to get to their destinations. Increased frustration and rising per-capita income (people will value their time more) will likely spark more citizen concern and calls for efforts to mitigate congestion. Below are a few likely strategies.

Road Pricing

Congestion pricing as a concept has been around since the 1960s, yet it has only been implemented recently. Singapore, Rome, and London all utilize a pricing scheme to reduce vehicle traffic in urban centers during peak hours. In London the road traffic has decreased by 15 percent since the plan was implemented and the public generally favors the measure. The congestion pricing in the United Kingdom may be suited only to densely populated cities with viable rail transit alternatives so that commuters can easily switch transportation modes. Electronic transponders used in tracking vehicles within a targeted “zone” could also be used for highway tolls. Privacy advocates will likely lobby against the technology associated with “area” pricing; their concerns may be allayed by legislation that protects any personal driver information. Some economists have found that the economic costs associated (such as administrative fees) outweigh the benefits of charging tolls over an urban area. The public will initially resist efforts to implement road pricing. Severe traffic congestion, when automobiles move barely faster than walking, will help them to change their minds. Road pricing will reduce travel at peak times and promote shifts in travel mode away from private automobiles.

HOT and ITS

On a smaller scale, High Occupancy Toll (HOT) lanes, that allow free use to car pools and toll paying single drivers, has the potential of increasing commuter speeds in areas where High-Occupancy Vehicles (HOVs) are under utilized. Regional transit buses could increase their speeds using HOT and HOV lanes. Intelligent Transportation Systems (ITS) will likely be an increasing funding priority as technology advances prove to reduce accidents and distribute traffic flows more evenly across roadways. Demand sensitive tolls could allow drivers to adjust

road choice with visual displays of prices adjusted to real-time congestion levels. Travel volume will increase if journey time decreases due to improvements from HOT or ITS.

Environment

Environmental regulations of the late 20th century often relied on “command-and-control” mechanisms. America was able to achieve dramatic successes in cleaning up the nation’s air, water, and communities. Yet the initial regulations were often determined without adequately analyzing associated costs, and at times even stifled innovative solutions to environmental problems. Prescriptive regulation is even less able to deal with some of the more diffuse global issues such as climate change or over-reliance on oil. In the next 50 years, effective regulation will utilize market mechanisms, work first with the highest priority issues, and build partnerships with industry. Climate change, oil dependency, environmental justice, air quality, and water issues will all gain greater prominence in the future. The section below details challenges and possible policy responses. Overall, the net effect of environmental regulation may cause the purchase price of vehicles to increase and reduce growth in ownership rates.

Climate Change

The overwhelming majority of climatologists agree that increasing concentrations of CO₂ are the chief cause of rapid changes in the earth’s climate. Scientists predict that increases in greenhouse gases will cause the surface temperatures to rise, disrupt precipitation patterns, alter global heat transfer systems such as the North Atlantic Ocean currents, increase severity and frequency of extreme meteorological events, alter farmland productivity, accelerate species extinctions, melt glacial and polar ice, and cause oceans to rise.

On February 16th, 2005 the Kyoto Protocol was implemented by 141 signatory nations, creating a global framework for atmospheric carbon reductions. While the United States government does not currently support the Kyoto Accord, over the next 50 years it is likely that this country will create policy to reduce CO₂ emissions in all sectors. Transportation is currently responsible for approximately 30 percent of atmospheric carbon additions. Regulators will select policies to pass on climate change costs to travelers to reduce the growing future levels of CO₂ and this will make some vehicles and/or fuels more expensive to operate.

Oil Dependency

Another factor potentially compounding the issues with global warming is the United States oil dependence. Domestic sources of petroleum account for less than half our consumption and this proportion will decrease further in the coming decades. Significant deposits of oil exist globally. Those sources are increasingly limited to volatile areas of the world and to nations that may have adversarial relations with the U.S. In addition, oil infrastructure is extremely vulnerable to attacks by small groups, and supply disruptions can have quick and negative impacts on markets and on our economy. Choosing to import oil from favored sources will not address the overall issue of price; oil is a fungible commodity and any reduction in the global supply results in price hikes. China and India’s rapidly expanding economies and growing need for oil to fuel this expansion exacerbates the petroleum supply hurdle. Policy makers will likely take some action to reduce dependence on oil, and fuel conservation is perhaps the best place to address this growing issue. Without some policy intervention transportation’s projected need for petroleum products will account for 93 percent of growth in national oil demand to 2025.

CAFE

Corporate Average Fuel Economy (CAFE) standards were implemented in 1975 under The 1975 Energy Conservation and Policy Act. CAFE was central in reducing the Oil Producing Cartel's (OPEC) ability to manipulate the price of petroleum following the Cartel's efforts in 1973 to reduce supply and elevate the price of oil. CAFE standards must achieve the "maximum feasible fuel economy" using currently available technologies. Following enactment of the Energy Conservation and Policy Act oil and imports dropped, while GDP grew by 37 percent. Subsequent increases in efficiency standards have been limited due to the strong opposition from the automobile industry and some experts view CAFE as less than the ideal regulatory tool for significant future reductions in oil dependency. Design changes mandated by stronger regulations would likely result in higher vehicle production costs. Other policy analysts suggest that making changes to CAFE such as allowing tradable "credits" across vehicle types and across manufacturers will provide incentives to optimize fuel efficiency in United States vehicles.

Gasoline Taxes and Pay at the Pump Insurance

The flipside of CAFE is addressing the issue of fuel economy from the "demand side." Increased gas taxes, carbon taxes and "Pay-at-the-Pump" insurance schemes serve to internalize economic, environmental, and social costs associated with driving. In addition, higher operating costs will likely reduce VMT, create revenue for alternative fuel research, or in the case of an insurance premium linked to gallons purchased, provide a method to insure drivers who currently choose to go without coverage, and encourage consumers to purchase more fuel efficient models. Congestion reduction is a possible beneficial byproduct of higher gasoline prices depending on the elasticity of travel demand and the size of the tax/insurance. Disadvantages to increasing the price of gas include economic inefficiencies, strong consumer and petroleum industry opposition, and regressive taxation impacts on lower income citizens. Additional merits and issues with reconfiguring operator insurance are beyond the scope of this paper.

Feebates

Select European countries and Canada have been using efficiency-based fees for over a decade. The feebate is essentially a rebate or a fee levied on the purchase of a new vehicle depending on its fuel efficiency. Buyers of vehicles that exceed a specific fuel economy benchmark, or the "pivot point," receive a rebate on the purchase price. The amount of the rebate is based on the degree to which the vehicle's fuel efficiency surpasses the "pivot point" within its size classification. Consumers who buy vehicles with efficiencies lower than the benchmark must pay a surcharge on their purchases. Through careful calibrations, the feebate is potentially "revenue-neutral" so that rebates are awarded equal fees charged with a small addition of funds collected for administrative costs. To reward materials innovation and further accelerate fuel savings, size classification can be based on interior volume of the vehicle instead of weight. Consumer choice is optimized towards oil use reduction and, unlike CAFE standards, feebates encourage continuous improvements in design. National models for a federal feebate system predict modest increases (also known as "rebound") in VMT over 20 years after feebate implementation, as fuel cost per mile drops in more efficient vehicles.

Additional Environmental Policy Issues

Environmental Justice Revisited – Limited transportation access is an issue for lower-income Americans who work outside of peak travel times or in areas with limited public access. One study has concluded that lack of affordable transportation is a more serious barrier to breaking

the poverty cycle than lack of childcare. The vehicles that low-income workers can afford are often at the end of their functional lifecycle. Older cars and trucks have high emissions and are the most likely to break down and impede traffic. Large-scale federal procurement and retirement of the most polluting models and new financing with government-backed risk-assurance (such as Sallie Mae Loans) could replace the older cars and increase car ownership among low-income workers. Arizona, California, Delaware, Illinois, and Maine currently utilize similar scrap programs. Transit improvements will also generate more equity in mobility without increased congestion on highways.

Air Quality – Future research may reveal additional correlations between airborne pollutants and preventable illnesses. Recent findings linking diesel emissions and the incidence of asthma supports this trend. Policy responses will accelerate actions to reduce fossil fuel consumption and/or mandate additional emissions controls at the exhaust pipe adding to vehicle production costs.

Water – Increased demands from a growing population in the Southwest, and potentially decreased supply from evaporation increases (global warming) or precipitation disruptions (climate change) will increasingly place cities in competition with agriculture and humans in competition with wildlife. Unlike most other resources there is no viable substitute for water. Transportation will likely face increased scrutiny concerning water use and impacts to aquatic environments, which may translate to a resistance to building new roads in certain regions. In addition, non-point pollutants of water like engine-motor oil, will have stricter and more expensive handling and disposal procedures. The traveling public will eventually have to cover all these increased costs concerning water.

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